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January 31, 2002

Magalie R. Salas, Esq.
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: **CC Docket Nos. 00-218 & 00-251**
In the Matter of Petition of AT&T Communications of Virginia, Inc., TCG Virginia, Inc., ACC National Telecom Corp., MediaOne of Virginia and MediaOne Telecommunications of Virginia, Inc. for Arbitration of an Interconnection Agreement With Verizon Virginia, Inc. Pursuant to Section 252(e)(5) of the Telecommunications Act of 1996

In the Matter of Petition of WorldCom, Inc. Pursuant to Section 252(e)(5) of the Communications Act for Expedited Preemption of the Jurisdiction of the CC Docket No. 00-218 Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia Inc., and for Expedited Arbitration

Dear Ms. Salas:

Enclosed please find an original and three (3) copies of each of the public and proprietary versions of the Joint Reply Post-Hearing Brief Of WorldCom, Inc and AT&T on Pricing Issues. Eight copies of the proprietary version of the brief are being forwarded to the Commission staff in this matter, and a copy is being hand-delivered to Verizon as well. Both versions are being served electronically on the parties.

Thank you for your consideration in this matter.

Respectfully submitted,

David M. Levy

David M. Levy

cc: Dorothy Attwood (8 copies of proprietary version)
Jeffrey Dygert
Catherine Carpino
Aaron Goldschmidt
Katherine Farroba
Counsel of Record

PUBLIC VERSION

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Petition of WorldCom, Inc. Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia Inc., and for Expedited Arbitration	)	CC Docket No. 00-218
In the Matter of Petition of AT&T Communications of Virginia Inc., Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia Corporation Commission Regarding Interconnection Disputes With Verizon Virginia Inc.	)	CC Docket No. 00-251

JOINT REPLY POST-HEARING BRIEF OF WORLDCOM, INC. AND AT&T ON PRICING ISSUES

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January 31, 2002

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JOINT REPLY POST-HEARING BRIEF OF WORLDCOM, INC. AND AT&T ON PRICING ISSUES

INTRODUCTION AND EXECUTIVE SUMMARY

AT&T[1] and WorldCom, Inc., respectfully submit this joint reply brief in support of the pricing proposals in their respective Petitions for Arbitration filed with the Commission on April 23, 2001.

In their 500 pages of opening briefs,[2] AT&T/WorldCom and Verizon agree on one point – that they are offering starkly different views of TELRIC to this Commission. For AT&T/WorldCom, the Synthesis Model presents a largely Commission-derived view of TELRIC in which all inputs are variable and a new network embodying efficient and forward-looking technology is developed to estimate UNE costs in Virginia. Verizon presents a competing view of TELRIC, in which its embedded network and various cost factors and adjustments are viewed as "forward-looking." The Commission must decide which view of TELRIC is correct, and which furthers the goal of the Telecommunications Act of making available competitive choices to Virginia consumers for local exchange service.

AT&T/WorldCom believe the choice is clear. Verizon argues that the Synthesis Model has many flaws but does not seriously dispute that it is a forward-looking study. The

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[1] The AT&T entities sponsoring this brief are AT&T Communications of Virginia, Inc., TCG Virginia, Inc., ACC National Telecom Corp., MediaOne of Virginia and MediaOne Telecommunications of Virginia, Inc. (together "AT&T").

[2] AT&T/WorldCom have submitted a Joint Initial Post-Hearing Brief of WorldCom, Inc. and AT&T on Pricing Issues (Dec. 21, 2001) ("AT&T/WCOM Cost Br.") and a Joint Initial Post-Hearing Brief of WorldCom, Inc. and AT&T on Switch Cost Issues (Jan. 17, 2002) ("AT&T/WCOM Switch Cost Br."). Verizon has submitted an Initial Post-Hearing Brief of Verizon Virginia Inc. (Dec. 21, 2001) ("Verizon Cost Br.") and an Initial Post Hearing Brief on Switching Issues (Jan. 17, 2002) ("Verizon Switch Cost Br.").

same cannot be said for Verizon's group of varied cost models. In discussing its cost methodology, Verizon chants its new mantra of "the constraints of TELRIC" (Verizon Cost Br. at 12) and "to the extent TELRIC permits" (Verizon Switch Cost Br. at 4, 5) in justifying its approach. But these phrases are pure Verizon-speak, part of its never-ending effort to appear TELRIC-complaint while gutting the forward-looking cost methodology in favor of its embedded cost approach. Nothing in TELRIC "constrains" Verizon to use its short-run approach, and nothing in TELRIC permits Verizon's reliance on its embedded network in determining UNE costs.

The differences in TELRIC philosophy extend to the inputs used in the proposed cost models. AT&T/WorldCom propose inputs to the Synthesis Model and the Non-Recurring Cost Model ("NRCM") that envision the use of the most up-to-date technology and infrastructure. By contrast, Verizon's various cost models start with its current embedded network – and in some instances go back a decade – to develop inputs in a three-year planning horizon.[3] That may be a long time, but it is not a long-run or forward-looking approach.

This reply brief is organized in the same manner as AT&T/WCOM's Initial Brief on Cost Issues and responds to the points raised by Verizon in their opening briefs. Switching cost issues that were briefed separately in the opening round of briefs are included in this reply brief. AT&T/WCOM have already addressed in their opening briefs a large number of issues raised by Verizon, and discuss only some of those issues again here. The failure to address in this reply brief a point raised by Verizon in its opening briefs does not signify agreement with that point but rather indicates that the issue likely has been previously addressed.

At bottom, the issue for the Commission is this: who has the right view of TELRIC? If it is AT&T/WorldCom, then the Commission will apply the Synthesis Model and

[3] As noted in the AT&T/WCOM Cost Brief, Verizon applies the three-year horizon in somewhat different ways for recurring and non-recurring costs, and for switching as opposed to loops. *See* AT&T/WCOM Cost Br. 48, 52-53.

the NRCM with the AT&T/WorldCom proposed inputs to develop UNE rates. Such rates should allow the development of competition for local exchange services in Virginia. If it is Verizon, then the Commission will use Verizon's various cost models and associated cost factors and adjustments to develop UNE rates. These rates will ensure that we, our children, and our children's children will have only Verizon as our local exchange carrier in Virginia, and the promise of local exchange competition envisioned by the Telecommunications Act can be buried here.[4]

I. RECURRING COSTS OF UNBUNDLED NETWORK ELEMENTS

A. TELRIC Methodology—Basic Conceptual Issues

All parties agree—or profess to agree—that the controlling legal standard for setting UNE prices in this case is the FCC's 1996 *Local Competition Order*. The real issue, underscored by the parties' initial briefs, is whether Verizon's compliance with TELRIC is to be real or only rhetorical.

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[4] Verizon boasts that choking off UNE-based competitive entry is a good policy, because facilities-based entry is the only form of entry that advances the competitive policies of the Act and maximizes the redundancy of the local telephone network. Verizon Cost Br. at 1, 6-7. The 1996 Act provides no basis for promoting facilities-based entry over UNE-based entry or resale, however. The Act obligates the Commission to encourage all three entry strategies; attempting to prejudge which of these methods should prevail "may have unintended and undesirable results." *Local Competition Order* ¶ 12. In particular, high UNE prices tend to "push competitors to build duplicative facilities when Verizon has substantial excess capacity and can provide access to UNEs at a far lower social cost than the cost of constructing new facilities." AT&T/WCOM Ex. 20 (Murray Surreb.) 11-13. Moreover, as the Commission has recognized, UNE-based entry and resale are typically the most affordable means for CLECs to establish an initial toehold against the incumbent LECs. *Id.* at 14-15; *Local Competition Order* ¶ 12. Creating an inhospitable regulatory environment for non-facilities-based entry thus is likely to thwart facilities-based entry as well.

In its initial brief, Verizon continues its strategy of supporting TELRIC in name while sabotaging it in application. The notion of "TELRIC" advanced by Verizon—the "real world" or "actual expected costs" of how Verizon's "robust" (i.e., embedded) network will be "actually deployed"—would allow Verizon to recover from AT&T, WorldCom and other CLECs precisely what TELRIC disallows: embedded costs, short-run costs, uneconomic costs, and costs that are unattributable to UNEs. Verizon Cost Br. at 2, 10, 15-19. Likewise, Verizon's rhetorical assault on the Synthesis Model as a "theoretical" and "generic" model of an "idealized, scorched-node" and "entirely hypothetical network," "instantaneously and successively rebuilt from scratch," is nothing less than an attack on TELRIC itself. *Id.* at 7-8, 11, 19-23.

(1) Verizon's self-congratulatory portrayal of its cost studies as "aggressively forward-looking" (Verizon Cost Br. at 12-16) misstates the relevant legal standard. TELRIC requires parties to model the costs of an efficient firm acting over the *long run*, when "all of a firm's costs become variable or avoidable"—not the costs that an incumbent firm, however "forward-looking" or "aggressive," would incur under the short-run incentives created by its existing investment in its embedded plant. AT&T/WCOM Cost Br. at 14; 47 C.F.R. § 51.505(b); *Local Competition Order*, ¶ 677 & n. 1682 (quoting Baumol treatise); *id.* ¶ 692 (citing Kahn treatise).

(2) Verizon's claim that its cost studies have in fact produced long-run cost estimates because Verizon "allowed" all of its inputs to be varied, even if Verizon ultimately declined to "assume away" its existing facilities or "instantaneously replace them with today's least-cost technologies," Verizon Cost Br. at 16-19, is meaningless double-talk. Long-run cost estimates by definition ignore the influence of existing investment. If the existence of sunk existing investment influences the outcome of the analysis, the study is not a long-run study.

Local Competition Order ¶ 677; AT&T/WCOM Cost Br. 15; AT&T/WCOM Ex. 11P (Murray Reb.) 6-24.

(3) Verizon confirms that the time horizon of its cost studies is short-run by defending their investment choices as the "rational and efficient" cost-minimizing option for a firm constrained by Verizon's *existing investment*. Verizon Cost Br. at 14-15 & n. 15; *id.* at 17 ("existing facilities are 'part of your choice set going forward'"; *id.* at 18 ("Verizon VA's recurring cost study methodology is designed to capture the costs of *incrementally* deploying" new investment, "taking appropriate account of existing facilities"). Whether Verizon's decisions are "rational and efficient" or not, if they are affected by the assets that Verizon currently owns, Verizon's cost study is in the realm of the short run. As Verizon acknowledged to the Supreme Court last year, "the FCC explicitly rejected any measure tied to the incumbent's actual network and present or future cost structure," *IUB Br.* at 3, and that "TELRIC necessarily ignores the reality that the incumbent has an existing network whose future capital costs and operating expenses are in large part dictated by the network's current configuration."[5]

(4) Verizon's rejoinder that a short-term time horizon for costing is warranted by the uncertainties in the *future* path of technology is a red herring. Verizon Cost Br. at 17-18. The issue here is not how soon Verizon will implement *future* technology that is still undeveloped or commercially unavailable. The issue is whether UNE prices should reflect the excess costs of technology that is *now* obsolete as a result of better or cheaper technology that is *already*

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[5] *Id.* at 11; *accord*, AT&T/WCOM Ex. 11P (Murray Reb.) 6-24. Likewise, a snapshot of the mix of "incremental" switching investment that Verizon plans to make over a three-year period is not a measure of long-run costs, no matter how vociferously Verizon claims to the contrary. Verizon Cost Br. at 18-19. The use of purchases from one year is similarly not representative of long-run costs. Because Verizon's embedded investment in switches has a remaining economic life far in excess of three years, an analysis that seeks to minimize costs over a three-year time horizon is by definition a short-run approach. *See* AT&T/WCOM Cost Br. at 15-16; *Local Competition Order* ¶ 677; AT&T/WCOM Ex. 11P (Murray Reb.) 14-17.

commercially available. Stated otherwise, the issue is whether CLECs must pay for yesterday's technology—and pay for it at today's prices.

(5) Verizon's rhetorical assault on AT&T/WorldCom's cost models for allegedly assuming "repeated, instantaneous and complete network replacement" (Verizon Cost Br. at 19-23) is an assault on TELRIC itself. In one of Verizon's recent briefs to the Supreme Court, the company acknowledged that "the FCC's methodology asked what particular elements would cost if the entire telephone network were rebuilt from scratch, as though writing on a blank slate." *IUB Br.* at 5; *compare Local Competition Order* ¶¶ 683-85 (explaining scorched node assumption of TELRIC), *see also* AT&T/WCOM Ex. 11P (Murray Reb.) 9-12 (citing other prior inconsistent statements by Verizon and its witness on the meaning of TELRIC).

For both TELRIC and the Synthesis Model, Verizon is attacking a straw man. The assumption of "instantaneous replacement" is in fact merely a convenient shorthand for what the TELRIC standard actually models: the continual revaluation of the prices of existing assets in response to advances in technology and other conditions in the markets where telephone companies obtain their equipment and other inputs. AT&T/WCOM Ex. 11P (Murray Reb.) 17-19; AT&T/WCOM Ex. 20 (Murray Surreb.) 23-25; Tr. 3187-88 (Murray). As Staff noted during the hearings, TELRIC does *not* literally assume "that you have to pull out" the network every three years; rather, it is a "hypothetical" construct designed to value the existing network in a way that simulates how changes in technology and market conditions cause the revaluation of existing assets in the real world. Tr. 3172 (comment of Mr. Stockdale). "I think we are confusing here actual investments that real companies do and the way costs are modeled in a TELRIC proceeding." Tr. 3111 (comment of Mr. Sharkey). In the "real world," a firm "would simply revalue" its assets "and continue to compete." *Id.* at 3124.

Verizon insists that the revaluation of existing assets does not actually occur instantaneously in real markets. Verizon Cost Br. at 20. But the purpose of the TELRIC pricing standard is not to replicate the imperfections of imperfect markets, but to simulate the economic performance of effective competition even where it is absent. AT&T/WCOM Cost Br. 71-72 (quoting *Bell Atlantic-Delaware, Inc. v. McMahon*, 80 F.Supp.2d 219, 240 n. 19).

(6) The tendency of markets to revalue existing assets in response to technological conditions, if properly modeled in TELRIC cost studies, renders essentially moot the dispute over whether the TELRIC model must assume the costs of a completely new inventory of state-of-the-art assets, or the mix of new and used assets that incumbent firms are likely to possess. Efficient firms will continue to use out-of-date assets only if their forward-looking opportunity cost is low enough to offset the lower operating costs, higher quality, or greater efficiency of more up-to-date technology.[6] It is precisely for this reason that Verizon is correct that a hypothetical "new entrant with the optimal network doesn't necessarily have long-run costs lower than those of an incumbent that efficiently and incrementally expands and replaces its network." Verizon Ex. 117 (Shelanski/Tardiff Surreb.) at 16.

To model this relationship properly in a TELRIC study, however, the asset values assumed in the study must be adjusted downward to capture the reduction in their opportunity cost that renders efficient their continued use.[7] Verizon's cost studies ignore this crucial step. Verizon is trying to have it both ways: recovering the higher operating costs of obsolete embed-

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[6] 1 Alfred Kahn, *Economics of Regulation* 118 (AT&T Ex. 100) ("If the AVC_o are smaller than the ATC_n is its economical to continue to use the old capital goods."); *see also* Tr. 3014:22-3015:7 (Shelanski); *id.* at 3016-19 (Shelanski).

[7] *See* 1 Alfred Kahn, *Economics of Regulation* (AT&T Ex. 100) at 121 ("If the economic value were correctly stated on the books the addition of gross return on that net book value to the variable costs of operating the old plant would produce a cost of service exactly equal to that of a new plant."); Tr. 3021-23, 3093 (Shelanski).

ded assets, without making the offsetting downward revaluation in the *investment value* of those assets that a competitive market would require.[8]

(7) Verizon's suggestion that the value of existing assets is largely insensitive to the commercial availability of better or cheaper new technology, even in competitive markets (Verizon Cost Br. at 23-26), is unsupported by any empirical evidence, and is contrary to the economists' views cited on this page and the previous page.

(8) Verizon's assertion that radically inflated capital costs and truncated depreciation lives are a necessary corollary of the TELRIC model (Verizon Cost Br. at 23-29) will be discussed at length in the cost of capital and depreciation sections of this brief, below. The short answer is that the *Local Competition Order*, which is not open for reconsideration in this proceeding, forecloses adoption of such a legal fiction. AT&T/WCOM Cost Br. 71-72 (quoting *Bell Atlantic-Delaware, Inc. v. McMahon*, 80 F.Supp.2d 218, 240 n. 19). So does the antidiscrimination provision of the 1996 Act. Even if the issue were properly before the Commission in this adjudication, however, consistency with the theoretical premises of TELRIC would imply business risks and capital costs *lower* than Verizon now faces. And the continual reassessment of asset prices implied by the TELRIC model should have no material effect on asset lives, which are determined primarily by the rate of technological change, not by the frequency with which technological change is measured. Tr. 3406 (Murray). *See* pp. 7-8 *infra.*

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[8] Tr. 3113-17 (Murray); *see generally id.* at 3095-99. An additional possible reason for continuing to use assets that are no longer state-of-the-art is that some or all of their investment is sunk, and hence unrecoverable by disposing of the asset. The forward-looking opportunity cost of sunk investment can be as low as zero. Hence, in "making your decision about whether to invest, you don't count your sunk investment." Tr. 3047 (Shelanski). *See* 1 Alfred Kahn, *The Economics of Regulation* 118 (1988) (sunk costs are "bygones, unchangeable past history, and best forgotten"). Verizon's cost studies likewise make no downward revaluation of asset values to reflect the sunk and unrecoverable portion of the company's existing investment in the local network.

(9) Verizon's suggestion that a big markup to cover regulatory risks should be included in (or added to) TELRIC-based prices is also unfounded. *Cf.* Verizon Cost Br. 3-4. A premise of Verizon's argument is that the FCC will set UNE prices below "true costs." *Id.* at 3. The 1996 Act requires that UNE prices cover forward-looking economic costs, and it is presumptuous for Verizon to assume that the FCC and reviewing courts will abdicate their responsibility under this section. *See* AT&T/WCOM Ex. 10 (Hirshleifer Reb.) 28-29. Verizon's claim that footnote 8 of the FCC's July 2001 reply brief to the Supreme Court on review of the *Local Competition Order* concedes the need for a substantial regulatory risk premium is a gross mischaracterization of the brief. The actual import of the brief, including the passages cited by Verizon, is the very opposite: i.e., that no risk premium is warranted in the present circumstances. *See* AT&T/WCOM Cost Br. 73-76 (discussing FCC reply brief).

(10) Verizon's final argument—that TELRIC costs must reflect the costs of a "robust, functional network" that is "actually capable of providing service" (Verizon Cost Br. 29-33)—appears to combine several different propositions. None have merit.

The proposition that a cost model must define a network that is literally "capable of providing service" (*id.* at 29) confuses cost models with engineering blueprints. No cost model, including the ones submitted by Verizon here, provides the level of engineering detail needed to build an actual operating network.

Verizon's further suggestion is contending that a cost model is invalid unless it mimics the architecture of the existing network is merely another variant of the argument that TELRIC prices should recover the embedded or short-term costs of an incumbent carrier's existing plant. As explained above, the proposition is flatly at odds with the very notion of TELRIC.

Finally, it is certainly legitimate for Verizon to take issue with any engineering or modeling assumptions that would understate even the long run forward-looking costs of an efficient network. The particular engineering criticisms offered on pp. 29-32 of Verizon's brief, however, are unfounded. We have responded to those criticisms in the relevant sections of AT&T/WCOM's briefs dealing with the particular model and input issues raised by Verizon.

B. Choice of Models: Synthesis Model vs. Verizon Models

1. Verizon's Criticisms Of The Synthesis Model Are Without Merit.

Verizon raises its usual litany of complaints against the Synthesis Model in claiming it is inappropriate for use in determining UNE costs in Virginia. These criticisms are no more convincing now than in their previous incarnations, and serve only to underscore Verizon's unbending opposition to the Synthesis Model in any form or for any purpose. Many of the criticisms raised by Verizon in its brief have been addressed in the AT&T/WCOM Cost Br. (at 26-43) and will not be repeated here, but several points deserve comment.

First, Verizon's claim (Verizon Cost Br. at 139-40) that the Synthesis Model can only estimate relative costs among states is totally without merit. In support of this claim, Verizon cites paragraph 32 of the *Universal Service Tenth Order* and a statement that nationwide values may not be appropriate for determining UNE prices. In a footnote to the preceding paragraph cited by Verizon, however, the Commission specifically stated that the Synthesis Model could be appropriate for determining UNE prices using statewide or company-specific values. *Id.* ¶ 31 n. 66. Thus, Verizon's reliance on the *Universal Service Tenth Order* is misplaced. *See also* AT&T/WCOM Cost Br. at 37-43 (discussing capabilities of Synthesis Model).

Verizon also cites (Verizon Cost Br. at 139) the Commission's Massachusetts Section 271 Order for the proposition that the Universal Service Fund cost model was not designed to determine rates for particular UNEs. Clearly, as AT&T/WorldCom witnesses have

testified, *see* AT&T/WCOM Ex. 1 (Pitkin Dir.) at 14-17, adjustments are required to the USF cost model to permit the determination of UNE costs. AT&T/WorldCom have made those adjustments in this proceeding, and as adjusted, the Synthesis Model is an appropriate basis for determining UNE costs for Virginia. *Id.*

Verizon's related complaint that AT&T/WorldCom have not used Virginia-specific data and have relied instead on nationwide values in the Synthesis Model (Verizon Cost Br. at 148-49) is also wrong. AT&T/WorldCom have incorporated Virginia-specific data for line counts, call completions, and dial equipment minutes, as well as Virginia-specific expense and investment data. AT&T/WCOM Ex. 1 (Pitkin Dir.) at 11. In addition, Virginia-specific data for switching and interoffice facilities have been included. AT&T/WCOM Ex. 4 (Pitts Dir.) at 4; AT&T/WCOM Ex. 16 (Pitts Surreb.) at 5-7. Adjustments have also been made to the structure mix percentages for distribution cable, copper feeder cable, and fiber feeder cable, and structure sharing inputs have been changed to reflect Virginia-specific conditions. AT&T/WorldCom Ex. 1 (Pitkin Dir.) at 19.

In other instances, nationwide values have been used where the nationwide data are likely to be either similar to that of Verizon-Virginia or more conservative. An example is switch costs and associated switch discounts. Large ILECs such as Verizon all receive similar switch prices and discounts from various switch vendors, and as a result, use of nationwide switch cost data mirror Verizon-Virginia's experience. AT&T/WCOM Ex. 4 (Pitts Dir.) at 4. Verizon itself uses regionwide data for several inputs, including switch costs and discounts.

Second, Verizon expresses disbelief (Verizon Cost Br. 9, 134-35) that the Synthesis Model could replicate its embedded network for only 40 percent of Verizon's existing investment. This disparity merely confirms the reasonableness of AT&T/WCOM's runs of the Synthesis Model. As Verizon represented to the Supreme Court last year, the TELRIC costs of a

local network typically amount to approximately 50 percent of the kind of embedded or ARMIS costs used by Verizon for its comparison.[9] The same relationship is to be expected here. Verizon's embedded data contain investments with a host of services whose investments are not included in the Synthesis Model (such as splitters, DSLAMs, conditioning, etc.) AT&T/WCOM Ex. 14P (Pitkin Surreb.) at 27. Moreover, a new entrant would not be burdened by the efficiencies of Verizon's largely copper embedded network, the legacy of many years of piecemeal growth. Indeed, for almost all of its existence, Verizon and its predecessors had little incentive to act efficiently in building its network under rate-of-return regulation, and its network reflects that fact. Moreover, as demonstrated by Ms. Murray, the cost savings available to an efficient new entrant in a competitive environment are similar to the levels of savings listed by Verizon in its brief. AT&T/WCOM Ex. 20 (Murray Surreb.) at 35-37 (citing cost savings of 45% and more in first five years of deregulation of network industries). Moreover, this Commission has already rejected the ill-conceived notion that forward-looking costs could be validated by embedded data. *Universal Service Fifth Order*, ¶ 66.

Third, Verizon's claim that the Synthesis Model fails to determine cost for many unbundled network elements (Verizon's Cost Br. at 137-138) is incorrect. The Synthesis Model develops costs for the overwhelming majority of Verizon's network costs – those costs relating to the loop, switching, and transport. By contrast, Verizon uses not just one model but several proprietary, stand alone models to develop costs, including costs associated with scores of additional UNE features and components that are peripheral to the determination of the principal network costs. For example, Verizon develops separate costs for many switch features, but these feature costs are already included in the switch costs developed by the Synthesis Model. Tr. 5191-92 (Pitts, Murray). As discussed in more detail below, the development of costs for special

[9] Brief of Petitioners Verizon Communications Inc. *et al.* in *Verizon Communications Inc. v. FCC*, No. 00-511 (U.S. filed Apr. 9, 2001) at 10-11.

access and high-capacity services takes into account the total investment developed by the Synthesis Model for providing those high capacity services and thus is tied to the Synthesis Model results even if not calculated as a Model output. For a small number of UNEs, AT&T/WorldCom have elected not to develop competing stand-alone cost models to develop costs for those elements, and in such cases, AT&T/WorldCom are content to restate Verizon's cost study reflecting forward-looking costs. This in no way undercuts the validity of the Synthesis Model or the costs that it develops.

Verizon's claim that AT&T/WorldCom's use of other cost models in current UNE cases in Massachusetts and the District of Columbia constitutes an admission that the Synthesis Model suffers from "fundamental defects" (Verizon Cost Br. at 141-42) is frivolous. AT&T/WCOM relied on adjustments to Verizon's cost models in the District of Columbia because that jurisdiction is too small to justify the expense of sponsoring and defending the Synthesis Model, and used the HAI model in ongoing litigation in Massachusetts because of its previous history in that state. In the three largest Mid-Atlantic states with ongoing UNE cost proceedings against Verizon—Virginia, Maryland, and Pennsylvania—AT&T/WorldCom are sponsoring the Synthesis Model.[10]

2. Verizon's Models And Inputs Do Not Comply With TELRIC.

Verizon's studies and inputs, in contrast, are TELRIC in name only. In most respects, Verizon's recurring and non-recurring studies do exactly what the Commission rejected when it adopted TELRIC over Verizon's objections: they take as a given Verizon's existing

[10] Verizon's arguments about the two missing wire centers (Verizon Cost Br. at 146 n.149) do not undercut the validity of the Synthesis Model or affect its results. As Mr. Pitkin testified, it appears that the two wire centers were omitted because of high line counts, but the effect of the omission was negligible, a penny difference in the loop rate. Tr. 4429-30, 4569-71 (Pitkin); AT&T Ex.130. Verizon's cost studies also dropped wire centers and lines from its studies. Tr. 5090-97 (Matt), Verizon Ex. 173, Tr. 5533-35 (Matt).

network in all of its particulars, and then model the changes and additions Verizon asserts it will make to that network over the next three years.[11] Verizon's models thus do exactly what the FCC expressly forbade when it rejected the ILECs' pricing proposals. In other respects, the models are not even forward-looking in this minimal sense. For example, loop lengths and copper feeder size are based on those that Verizon had in place in the mid-1990's, and the expenses modeled are based on Verizon's network expenses in 1999. These are embedded costs (or "actual" costs, in Verizon's parlance). AT&T/WCOM Cost Br. at 13.[12] Indeed, even Verizon's own witnesses have refused to testify that Verizon's models are TELRIC-compliant. AT&T/WCOM Cost Br. at 18-21 (citing testimony of Verizon witnesses Shelanski, Taylor and Tardiff).

Verizon's most significant departures from TELRIC involve the input values to its models.[13] One major area of error is Verizon's use of outside plant input values generated by a survey of its embedded outside plant between 1993 and 1995. *See* AT&T/WCOM Cost Br. 49-51; AT&T/WCOM Ex. 11P (Murray Reb.) 28-30. Another set of errors involve the assumed mix of digital loop carrier ("DLC") technologies: the percentage split between IDLC and UDLC in Verizon's cost studies is based on Verizon's embedded network. AT&T/WCOM Cost Br. 49-51, 133-43; AT&T/WCOM Ex. 11P (Murray Reb.) 22, 24-28. Verizon likewise relies inappro-

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[11] At that point, the recurring and non-recurring studies make differing assumptions. The recurring study takes the additions it models, and then uses those additions as a proxy for a network large enough to serve total demand. The non-recurring study models what Verizon asserts its actual network will look like in three years. *See* Part II, *infra.*

[12] Verizon Ex. 107 (Verizon Panel Dir.) at 39; Verizon Ex. 122 (Verizon Recurring Cost Panel Surreb.) at 115, 119, 141.

[13] Correcting those errors would not assure TELRIC-compliant results, however. Because many of the model algorithms and assumptions are difficult or impossible for the user to discern, there is no way to rule out the possibility that the Verizon models suffer from other, undisclosed errors. *See* AT&T/WCOM Cost Br. 46-48.

priately on its embedded network when modeling the size and type of digital loop carrier electronics. AT&T/WCOM Cost Br. 52. Finally, Verizon bases its recurring and non-recurring models on incompatible assumptions; this approach is both irrational and the cause of inflated costs. *Id.* at 52-53.

We respond to Verizon's arguments on each of these issues in the appropriate input section of this reply brief, below.

C. Cost Of Capital

The initial brief of AT&T and WorldCom provides a detailed analysis of the cost of capital issue. AT&T/WCOM Cost Br. at 54-94. Because this analysis anticipates nearly all of the arguments in Verizon's initial brief, only the most salient points are covered here.

1. Mr. Hirshleifer's Three-stage DCF Equity Model Is More Realistic Than Dr. Vander Weide's One-stage DCF Equity Model.

The single most significant dispute between Mr. Hirshleifer and Dr. Vander Weide involves the number of stages appropriate for a DCF equity model. This dispute alone accounts for about two percentage points, or more than half of the total difference between the 9.54 percent weighted average cost of capital recommended by Mr. Hirshleifer and the 12.95 percent value recommended by Mr. Hirshleifer. The one-stage DCF model used by Dr. Vander Weide implicitly assumes that the above-average growth rates projected for the companies in his DCF comparison group for the next 3-5 years will continue forever. It should be obvious to investors that this assumption is an impossibility. Unsurprisingly, the single-stage DCF model has been overwhelmingly rejected by scholars and practitioners in the field of corporate finance. AT&T/WCOM Cost Br. at 59-68.

Verizon's Initial Cost Brief leaves this analysis virtually unchallenged. Verizon does not dispute that the single-stage DCF model has been overwhelmingly rejected by scholars